

Mean and Standard Deviation of a Binomial Distribution

A certain surgical procedure has an 85% chance of success. A doctor performs the procedure on eight patients. Find the mean and standard deviation for the number of successful surgical procedures.

$$n = \quad p = \quad q =$$

For a Binomial Probability Distribution-

Mean:

Standard Deviation:

Find the mean and standard deviation for the problem above.

Interpretation: Range Rule of Thumb:

Maximum usual value: $\mu + 2\sigma$

Minimum usual value: $\mu - 2\sigma$

In the problem above:

- a.) Is it unusual for there to only be 3 successful surgery's when this procedure is used?
- b.) Is it unusual for there to be 8 successful surgery's when this procedure is used?

Example: Several statistics students are unprepared for a surprise true/false test with 16 questions, and all of their answers are guesses.

$$n = \quad p = \quad x =$$

- a.) Find the mean and standard deviation for the number of correct answers for such students.
- b.) Would it be unusual for a student to pass by guessing and getting at least 10 correct answers?

Example: The results of a recent survey indicate that 58% of households in the United States own a gas grill. If you randomly select 100 households to survey.

$$n = \quad p = \quad x =$$

- a.) Find the mean and standard deviation for the number of correct answer for such students.
- b. Would it be unusual for 70 of the 100 households to have a gas grill?